Arizona Department of Health Services

Division of Public Health Services
Office of the Assistant Director
Public Health Preparedness Services
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JANET NAPOLITANO, GOVERNOR
CATHERINE R. EDEN, DIRECTOR

FAX TRANSMITTAL SHEET

DATE: **March 9, 2005**

TO: **Laboratory Director and QA Manager**

FROM: **Steven D. Baker, Office Chief**
Lab Licensure, Certification and Training
State Laboratory Services

Subject: **Information Update #86**

PAGES: **7 (including cover)**

NOTE: **If any of the pages are missing, please call 1-800-952-0374, (602) 364-0734 or (602) 364-0733.**

THIS MESSAGE AVAILABLE IN ALTERNATIVE FORMAT UPON REQUEST, BY CONTACTING: Prabha Acharya AT (602) 364-0734.

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Information Update

March 9, 2005
Update #86

1. **The following methods have been Director Approved for compliance testing in Arizona:**

   Hach Method 8021 for Free Available Chlorine in Wastewater;

   EPA Method 1604 for Total Coliform and E. Coli in drinking water, source water and ambient water.

2. **Please include the AZ number (Laboratory license number issued by Arizona Laboratory Licensure) in all the correspondence submitted to our Office. This will assist us in proper tracking of the correspondence when multiple labs are licensed under the same name, ownership and/or mailing address.**

3. **Kathryn Wangsness is now the DMRQA Coordinator for the State of Arizona. Please direct all future correspondence or questions regarding DMRQA to Kathryn. Following is her contact information:**

   Office of Laboratory Licensure, Certification and Training

   250 N. 17th Avenue, Phoenix, AZ 85007-3231

   wangsnk@azdhs.gov

   Tel: (602) 364-0724 Fax: (602) 364-0759

4. **The following information was obtained from Mr. Dale Rushneck, an Consultant for EPA, regarding the preservation requirements of acrolein and acrylonitrile when EPA Method 624 is used:**

   Requirements in Method 624

   Section 1.2 of Method 624 states: "The method may be extended to screen samples for acrolein ... and acrylonitrile ... , however, the preferred method for these two compounds is Method 603." This

statement implies that Method 624 may not be suitable for determination of these two compounds. However, in principle, Method 624 should produce results as reliable, if not more reliable, as Method 603.

<u>Disparity in preservation requirements between Method 624 and Method 603.</u>

A problem with use of Method 624 vs Method 603 is the disparity in sample preservation and holding time requirements. Both methods require dechlorination, and refrigeration of the sample from the time of collection until analysis. Method 624 does not require pH adjustment if the sample is analyzed within 7 days, but requires preservation of a separate sample to pH 2 if the aromatic volatiles (benzene, toluene, ethyl benzene) are to be determined and the holding time is to be extended from 7 to 14 days. For acrolein, Method 603 requires preservation to pH 4 - 5 as determined with narrow-range pH paper if the holding time is to be extended from 3 to 14 days.

<u>Options for determination of acrolein by Method 624</u>

1. Analyze the sample within 3 days of collection. Preservation (other than refrigeration) is not required.

2. Collect a sample separate sample, preserve to pH 4-5 using narrow-range pH paper, refrigerate, and analyze within 14 days.

<u>What would not be allowed for determination of acrolein by Method 624</u>

The pH of the sample for non-aromatic volatiles in Method 624 may not be adjusted to pH 4 - 5 to extend the holding time for acrolein to 14 days because the effect of this pH adjustment on the non-aromatic volatiles is not known.

A sample preserved to pH 2 to extend the holding time for aromatic volatiles to 14 days may not be used for determination of acrolein because the effect of this pH adjustment on acrolein is not known.

<u>Options for determination of Acrylonitrile by Method 624</u>

Acrylonitrile may be determined directly using the sample for non-aromatic volatiles in Method 624 or, if a separate sample is collected for acrolein, may be determined in that separate sample using Method 624.

5. After consulting with EPA Region IX, it has been confirmed that laboratories must use the approved wastewater methods listed in 40 CFR, Sec. 136.3, Identification of test procedures, for the analytes in that Section.

If the ADEQ's permit language allows, for those analytes that are not included in the 40 CFR, Part 136, the laboratories may use any currently approved method by ADHS meeting the required reporting limits (that includes the non-wastewater method also).

However, the laboratories should be qualifying the final report to state that the parameter was analyzed by a method that is not currently approved by ADHS for wastewater samples.

6. **EPA method 508 and 508.1:**

Quality Control criteria for multi-component pesticides: Measures must be taken in order to verify the multi-component detection limits or pattern recognition levels (PRL's) regularly. One of the multi-component analytes is to be run at the PRL daily. Each day of analysis, a different multi-component analyte is to be run in order to verify the detection level of each of these analytes routinely ("Manual for the Certification of Laboratories Analyzing Drinking Water", March 1997, EPA-815-B-97-001, Chapter IV, Section 7.2.4). Additionally, if any of the multicomponent analytes is detected in the sample, then a full calibration curve must be generated for quantitation of that analyte.

The above required criteria is one of the DIRECTOR APPROVED METHOD MODIFICATIONS, dated 8/29/2001, available on the ADHS website, http://www.azdhs.gov/lab/license/tech/methmod.pdf

It was decided to repeat the above information because some of the labs are not following proper QC procedures for multi-component analytes.

7. **The laboratories must record the temperature of the pH buffers and samples, and report the temperature with the pH of the samples (EPA Method 150.1, Section 4.4 & SM 4500-H B1b, SW-846 9040B, 7.4). Even though the pH meter may have a temperature compensator, this only accounts for one of the temperature effects for pH determinations.**

8. **8015AZ, clarification**:

C6 - C10 hydrocarbons (GRO) in soil, is not a compliance range in Arizona but is often a requested range for suspected gasoline contamination investigation, the reason for inclusion in the Method. When clients request for GRO by 8015AZ, they must be made aware that the reported results are for information purposes only. If a client insists that the GRO is for compliance, then it can be run by 8015B.

C10 – C32 hydrocarbons, the sum of DRO and ORO, is for compliance and the approved method is 8015AZ.

8015AZ is for testing soil samples and cannot be modified to test water samples.

9. As per R9-14-617, Laboratory Records and Reports, a licensee shall maintain records and reports of compliance testing and the ability to reproduce all electronic data for at least five years from the date of compliance testing. A licensee shall maintain records and reports for the most current two years on-site at the laboratory and may store the remaining records and reports in a secure storage facility.

Laboratories are allowed to maintain their original hardcopy data as a scanned document. However, the labs must be able to convert the scanned document to a hardcopy format with the original data during the on-site surveys.

10. The Training Program is planning to have a workshop titled "Basics of Analytical Instrument Calibration", in Phoenix, on April 19, 2005. It is a two-hour presentation on calibration and a two-hour session on question/answer. It is scheduled to be held at the ADHS State Lab Conference Room, at 250 N. 17th Avenue, Phoenix 85007-3231, from 9:00 AM to 1:00 PM. The registration starts at 8:30 AM. The registration fee is $50.00 per person. Please complete the attached registration form and fax it to (602) 364-0758 before April 01, 2005, if you are interested in attending the workshop. Please make the check payable to ADHS and mail it to the Lab Licensure, at the above address, to the attention of Maria Valenzuela,

A tentative outline of the presentation on Calibration would be (9:00 AM – 11:00 AM):

Definition of calibration;

Fundamental analytical measurement models
Response vs. concentration
Standard deviation vs. concentration
Relative standard deviation vs. concentration;

Response and Calibration factors;

Effect of error on calibration;

Calibration models
Single point
Straight line through origin
Linearity tests
Least squares
RSD of calibration factor
Straight line not through origin
Linearity tests
Curved line through origin
Best-fit model
Curved line not through origin
Best-fit model;

Analytes and calibration

Classical/conventional
Metals
Organics
Microbiological
Radiological;

EPA requirements for calibration;

Relationship between calibration and detection and quantitation limits.

The question/answer session (11:00 AM – 1:00 PM) will be on analytical methods and EPA wastewater regulations. If attendees provide the questions in advance, Mr. Rushneck will prepare a presentation of answers or attendees at the workshop may ask questions during the session, or both. Please e-mail the questions to acharyp@azdhs.gov.

Mr. Dale Rushneck's Bio:

Dale Rushneck received an A.B. in physics and mathematics from Thiel College and completed graduate level course work in physics, chromatography, chemistry, and business. He has more than 35 years' experience in analytical chemistry.

Mr. Rushneck supervised design, development, construction, and operation of the Viking gas chromatograph/mass spectrometers (GCMS), major instruments on NASA's Viking Mars Landers. He played a key role in the development, application, and acceptance of isotope dilution GCMS for determination of volatile and semi-volatile organic pollutants in environmental samples. Mr. Rushneck has consulted to 20 U.S. and foreign companies in the startup and operation of environmental testing laboratories.

Mr. Rushneck is currently with Interface Inc., and has been a consultant to EPA for the past 25 years providing expertise in the development and application of analytical methods and environmental regulations. In this capacity, Mr. Rushneck has supported the development of quality assurance/quality control (QA/QC) procedures, QA management and project plans, analytical plans and techniques, sample handling and management policies, and computerized systems. He is also involved in data evaluation and laboratory auditing.

11. **Please contact Joe Harmon at (602) 364-0673 or harmonj@azdhs.gov. for workshop related questions and contact Prabha Acharya @ (602) 364-0734 or acharyp@azdhs.gov for technical questions.**

REGISTRATION FORM

APRIL 19, 2005, 9 AM -1 PM

BASICS OF ANALYTICAL CALIBRATION

(Please Type or Print)

(Dr., Mr., Mrs., Ms., Miss) _____
(First) (M.I.) (Last)

Employer's Name: _____ **Position Title:** _____

Employer's Address:

_____

City: _____ **State:** _____ **Zip:** _____

Employer's Phone Number: (_____) _____

Employer's Fax Number: (_____) _____

Check enclosed _____ **check to be mailed** _____

Please fax the completed registration form to;

Maria Valenzuela
Fax: (602) 364-0758

Registration fee is $50.00. Please enclose a copy of the completed registration form with payment and mail to:

Maria Valenzuela

Office of Laboratory Licensure, Certification and Training

250 N. 17th Avenue, Phoenix, AZ 85007-3231

Telephone: (602) 364-0746